WLS27 LED Strip Light with Dimmable PWM Product Manual

Original Instructions
p/n: 186597 Rev. I
11-Sep-25

Contents

Chapter Contents

Chapter 1 Features

This guide is designed to help you set up and install the WLS27 LED Strip Light. For complete information on programming, performance, troubleshooting, dimensions, and accessories, please refer to the Product Manual at www.bannerengineering.com. Search for part number Key definition for "MANUAL_PART_NUMBER" not found in the DITA map. to view the Product Manual. Use of this document assumes familiarity with pertinent industry standards and practices.

Banner's WLS27 LED Strip Light has a sturdy aluminum housing and is encased in a shatterproof, UV-stabilized, copolyester shell, making it ideal for harsh indoor and outdoor applications.

- Intensity can be controlled from 0 to 100% using Pulse Width Modulation (PWM) on an input control wire
- Rugged, water-resistant IP69K rating
- Available in eight lengths from 145 mm to 1130 mm
- Daisy chain power to multiple lights to control intensity simultaneously
- Automatic temperature protection built into the unit. Above 50 °C, the light dims to manage heat and protect product lifetime

For PWM dimming, use with the LC65 Dimmer Module. For more information, refer to the LC65 LED Dimmer Module datasheet, p/n 177086.

Stand-Alone Light or End Light in a Cascade—QD

First or Middle of a Cascade—QD

These Work Light Strips are available as either stand-alone models, or as cascade models that can be daisy-chained together for a continuous length of lighting, with a minimum of wiring.

Stand-alone models have a male quick disconnect at one end for power connection and no connections at opposite end. A stand-alone model may be used as the last in the cascade series.

Cascade models have a male quick disconnect at one end for power connection, and a female quick disconnect at the opposite end for connecting to other lights in the cascade. A double-ended accessory cordset must be used between each pair of lights in a cascade.

Use single-ended cordsets between the power source and the QD connection of a stand-alone light or the first light in a cascade. Use double-ended cordsets between lights in a cascade.

IMPORTANT: Read the following instructions before operating the light. Please download the complete WLS27 LED Strip Light technical documentation, available in multiple languages, from www.bannerengineering.com for details on the proper use, applications, Warnings, and installation instructions of this device.

IMPORTANT: Lea el siguiente instructivo antes de operar el luminario. Por favor descargue desde www.bannerengineering.com toda la documentación técnica de los WLS27 LED Strip Light, disponibles en múltiples idiomas, para detalles del uso adecuado, aplicaciones, advertencias, y las instrucciones de instalación de estos dispositivos.

IMPORTANT:Lisez les instructions suivantes avant d'utiliser le luminaire. Veuillez télécharger la documentation technique complète des WLS27 LED Strip Light sur notre site www.bannerengineering.com pour les détails sur leur utilisation correcte, les applications, les notes de sécurité et les instructions de montage.

Models

Model Key

Family	Cascadable	LED Color	Lighted Length (mm)	Window	Construction	Dimming	Connector[1]
WLS27	C	W	145	D	S	PWM	Q
	C = Cascadable X = Non-cascadable	W = Cool white WW = Warm white R = Red G = Green B = Blue Y = Yellow	145 285 430 570 710 850 990 1130	D = Diffused plastic	S = Sealed	PWM = Pulse Width Modulation dimming	Q = Integral 4-pin M12 male quick-disconnect connector

Model Names

Stand-Alone	Cascade	Lighted Length	Power Connector
WLS27XW145DSPWMQ	WLS27CW145DSPWMQ	145 mm	Integral 4-pin M12 male quick-disconnect connector
WLS27XW285DSPWMQ	WLS27CW285DSPWMQ	285 mm	
WLS27XW430DSPWMQ	WLS27CW430DSPWMQ	430 mm	
WLS27XW570DSPWMQ	WLS27CW570DSPWMQ	570 mm	
WLS27XW710DSPWMQ	WLS27CW710DSPWMQ	710 mm	
WLS27XW850DSPWMQ	WLS27CW850DSPWMQ	850 mm	
WLS27XW990DSPWMQ	WLS27CW990DSPWMQ	990 mm	
WLS27XW1130DSPWMQ	WLS27CW1130DSPWMQ	1130 mm	

[1] Models with a quick-disconnect connector require a mating cordset.

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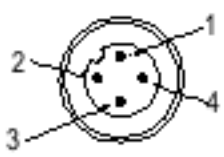
Chapter 2 Wiring

Male	Female	Pin	Wire Color	Connection
		1	brown	12 V DC to 30 V DC
		3	blue	DC common
		4	black	Pulse width modulation (PWM) input. For maximum intensity, leave the black wire floating or connected to common. Connecting to 12 V DC to 30 V DC causes LEDs to shut off.
		2	white	Not used

Chapter Contents

Chapter 3 Specifications

Operating Voltage

12 V DC to 30 V DC

Use only with a suitable Class 2 power supply (UL) or SELV power supply (CE)

See electrical characteristics on product label.

Pulse Width Modulation (PWM)

Frequency: Up to 1000 Hz

Voltage: 8 to 30 V DC

Current: 4 mA max. per foot

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Light Characteristics

Cool White

Color Temperature (CCT): 6500K (+500K, -400K)
Lumen output: 800 (± 5%) per foot, typical at 25 °C (77 °F)
Luminous efficacy: 90 lumens/Watt typical at 24 V DC at at 25 °C (77 °F)
CRI: 85, typical

Warm white: 3000K (+200K, -100K)

Green: 525 nm

Red: 618 nm

Yellow: 590 nm

Blue: 460 nm

LED Lifetime

Lumen Maintenance - L_{70}

When operating within specifications, output will decrease less than 30% after 75,000 hours.

Construction

Clear anodized aluminum housing; FDA-grade copolyester outer housing

Mounting

Bracket LMBWLS27EC included (2 for lights up to 570 mm or 3 for lights 710 mm and longer)

Certifications

Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

Connections

Integral 4-pin M12 male quick-disconnect connector (4-pin connecting cordset required)

Storage Temperature

–40 °C to +70 °C (–40 °F to +158 °F)

Operating Temperature

–40 °C to +70 °C (–40 °F to +158 °F)

Light output begins to decrease above 50 °C (122 °F) and will be approximately 65% of max intensity at 60 °C (140 °F) and 30% of max intensity at 70 °C (158 °F)

Application Note

When connecting cascadable lights in series it is important not to exceed maximum current limitations:

Maximum length of light at 12 V DC: 1.4 m (4.6 ft)

Maximum length of light at 24 V DC: 3.0 m (9.8 ft)

Maximum length of light at 30 V DC: 3.1 m (10.2 ft)

At 50% intensity, double the lengths

NOTE: Do not spray cable with high-pressure sprayer, or cable damage will result.

Environmental Rating

Rated IP66, IP67, and IP69K per ISO 20653

Vibration and Mechanical Shock

Vibration 10-55 Hz 1.0 mm p-p amplitude per IEC 60068-2-6

Shock 15G 11 ms duration, half sine wave per IEC 60068-2-27

Light Length	Typical Current			Max. Current
	12 V DC	24 V DC	30 V DC	A
145 mm	0.33 A	0.15 A	0.12 A	0.4
285 mm	0.66 A	0.3 A	0.24 A	0.8
430 mm	1.01 A	0.46 A	0.36 A	1.2

Continued on page 7

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Light Length	Typical Current			Max. Current
	12 V DC	24 V DC	30 V DC	A
570 mm	1.36 A	0.61 A	0.48 A	1.6
710 mm	1.75 A	0.77 A	0.6 A	2
850 mm	2.13 A	0.92 A	0.73 A	2.4
990 mm	2.59 A	1.08 A	0.85 A	2.8
1130 mm	3.04 A	1.24 A	0.97 A	3.2

Light Length	Typical Current			Max. Current	Lumens (Typical at 25 °C)					
	12 V DC	24 V DC	30 V DC	A	Cool White	Warm White	Green	Red	Yellow	Blue
145 mm	0.33 A	0.15 A	0.12 A	0.4	400	400	180	55	50	40
285 mm	0.66 A	0.3 A	0.24 A	0.8	800	800	360	110	100	80
430 mm	1.01 A	0.46 A	0.36 A	1.2	1200	1200	540	165	150	120
570 mm	1.36 A	0.61 A	0.48 A	1.6	1600	1600	720	220	200	160
710 mm	1.75 A	0.77 A	0.6 A	2	2000	2000	900	275	250	200
850 mm	2.13 A	0.92 A	0.73 A	2.4	2400	2400	1080	330	300	240
990 mm	2.59 A	1.08 A	0.85 A	2.8	2800	2800	1260	385	350	280
1130 mm	3.04 A	1.24 A	0.97 A	3.2	3200	3200	1440	440	400	320

FCC Part 15 Class B for Unintentional Radiators

(Part 15.105(b)) This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Industry Canada ICES-003(B)

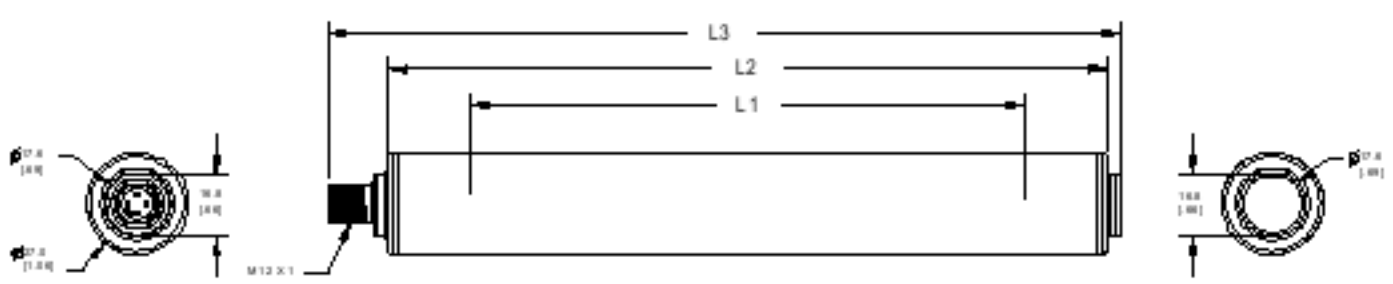
This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

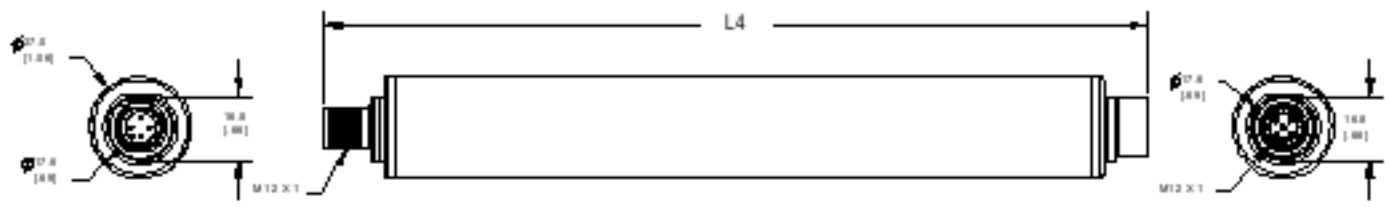
Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.

Quick Disconnect Models



Cascade Models



Models	L1	L2	L3	L4
WLS27..145..	145 mm (5.7 in)	191 mm (7.5 in)	210.5 mm (8.3 in)	219 mm (8.6 in)
WLS27..285..	286 mm (11.3 in)	332 mm (13.1 in)	351.5 mm (13.8 in)	360 mm (14.2 in)
WLS27..430..	427 mm (16.8 in)	473 mm (18.6 in)	492.5 mm (19.4 in)	501 mm (19.7 in)
WLS27..570..	568 mm (22.4 in)	614 mm (24.2 in)	633.5 mm (24.9 in)	642 mm (25.3 in)
WLS27..710..	709 mm (27.9 in)	755 mm (29.7 in)	774.5 mm (30.5 in)	783 mm (30.8 in)
WLS27..850..	850 mm (33.5 in)	896 mm (35.3 in)	915.5 mm (36 in)	924 mm (36.4 in)
WLS27..990..	991 mm (39 in)	1037 mm (40.8 in)	1056.5 mm (41.6 in)	1065 mm (41.9 in)
WLS27..1130..	1132 mm (44.6 in)	1178 mm (46.4 in)	1197.5 mm (47.1 in)	1206 mm (47.5 in)

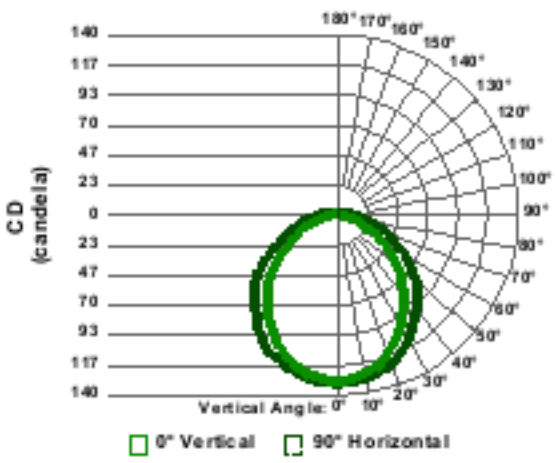
Photometric Data

The optical data shown below is for cool white only. To get lux and candela values for other colors, multiply the values shown on the charts by the following factors:

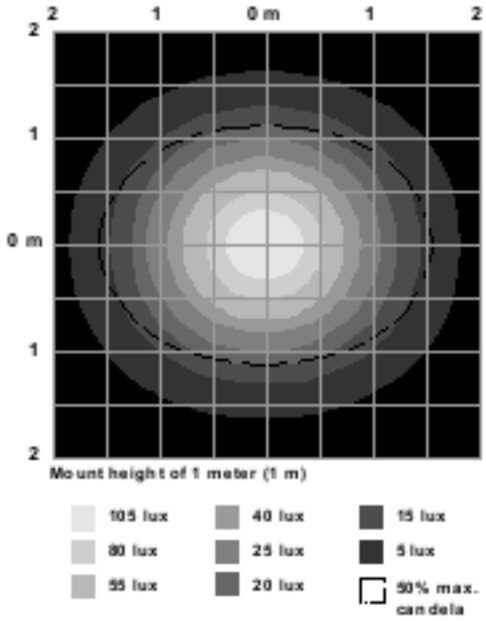
Warm White:	1
Green:	0.45
Red:	0.138
Yellow:	0.125
Blue:	0.1

145 mm models

Polar Candela Distribution



Isolux Pattern



Illuminance at a Distance

	Center Beam (lux)	Beam Width (m)	
0.17 m	3644 lux	0.37 m	0.53 m
0.33 m	1099 lux	0.74 m	1.05 m
0.50 m	494 lux	1.11 m	1.59 m
0.67 m	280 lux	1.48 m	2.12 m
0.83 m	185 lux	1.85 m	2.64 m
1.00 m	129 lux	2.22 m	3.17 m

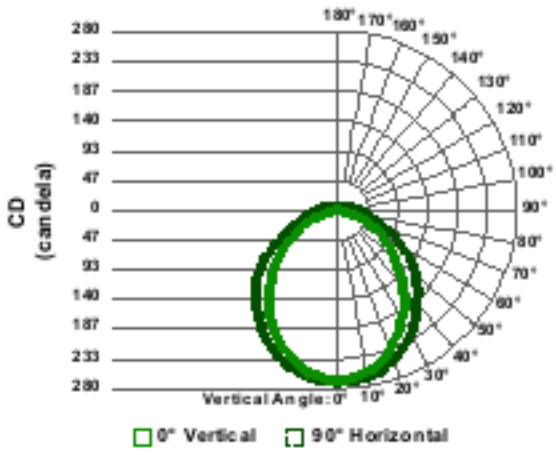
Vert. Horiz.

Vertical Spread: 95.1°

Horizontal Spread: 115.0°

285 mm models

Polar Candela Distribution



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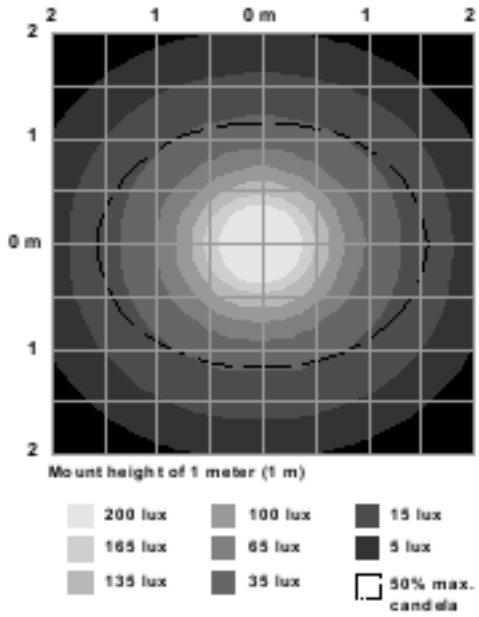


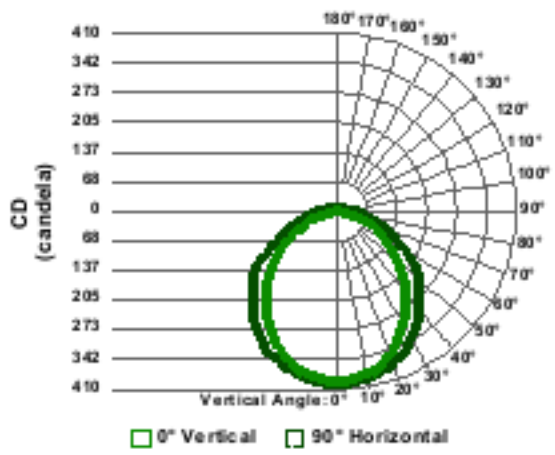
Illuminance at a Distance

	Center Beam (lux)	Beam Width (m)	
		Vert.	Horiz.
0.17 m	6280 lux	0.38 m	0.52 m
0.33 m	2256 lux	0.76 m	1.04 m
0.50 m	1066 lux	1.14 m	1.56 m
0.67 m	616 lux	1.53 m	2.09 m
0.83 m	409 lux	1.91 m	2.60 m
1.00 m	289 lux	2.29 m	3.12 m

Vertical Spread: 97.8°
Horizontal Spread: 115.0°

430 mm models

Polar Candela Distribution



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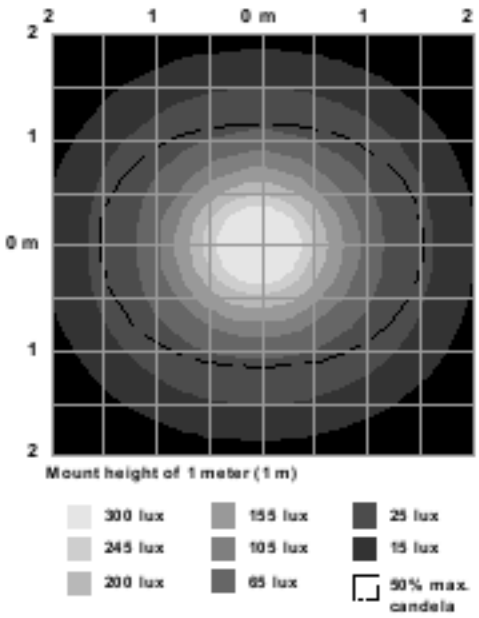


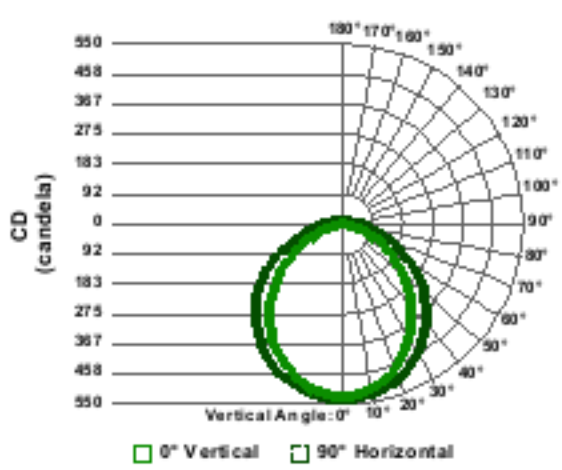
Illuminance at a Distance

	Center Beam (lux)	Beam Width (m)	
		Vert.	Horiz.
0.17 m	7280 lux	0.39 m	0.51 m
0.33 m	2996 lux	0.77 m	1.02 m
0.50 m	1516 lux	1.16 m	1.53 m
0.67 m	909 lux	1.54 m	2.05 m
0.83 m	610 lux	1.92 m	2.55 m
1.00 m	436 lux	2.31 m	3.07 m

Vertical Spread: 98.2°
Horizontal Spread: 113.8°

570 mm models

Polar Candela Distribution



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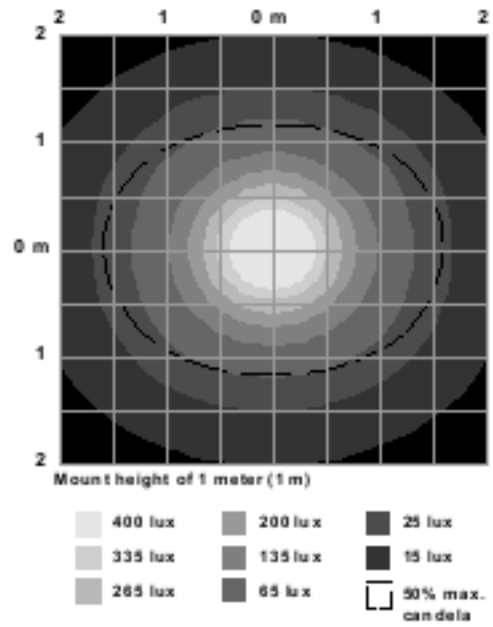


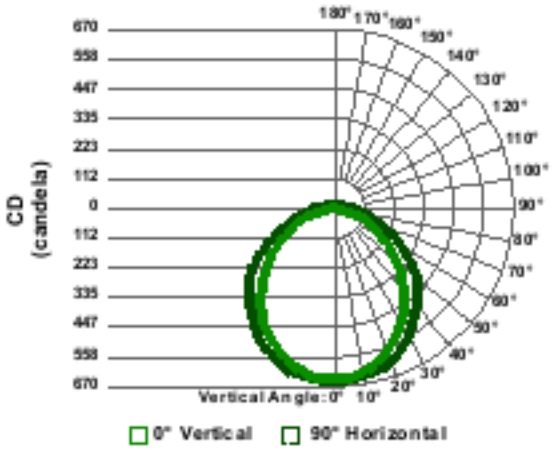
Illuminance at a Distance

	Center Beam (lux)	Beam Width (m)	
		Vert.	Horiz.
0.17 m	7570 lux	0.39 m	0.52 m
0.33 m	3370 lux	0.77 m	1.04 m
0.50 m	1826 lux	1.16 m	1.56 m
0.67 m	1125 lux	1.55 m	2.09 m
0.83 m	768 lux	1.93 m	2.60 m
1.00 m	553 lux	2.32 m	3.13 m

Vertical Spread: 98.5°
Horizontal Spread: 115.7°

710 mm models

Polar Candela Distribution



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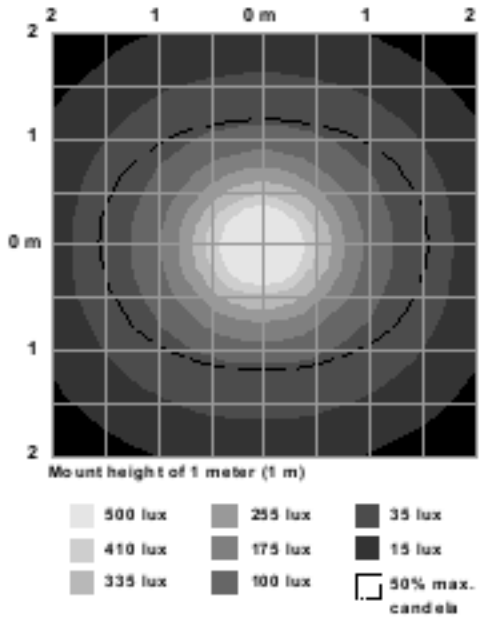


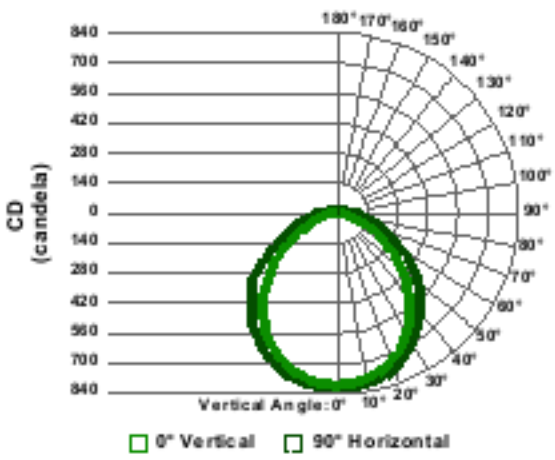
Illuminance at a Distance

	Center Beam (lux)	Beam Width (m)	
0.17 m	7513 lux	0.39 m	0.52 m
0.33 m	3563 lux	0.78 m	1.04 m
0.50 m	2033 lux	1.17 m	1.56 m
0.67 m	1260 lux	1.57 m	2.08 m
0.83 m	877 lux	1.95 m	2.59 m
1.00 m	637 lux	2.35 m	3.12 m
		Vert.	Horiz.

Vertical Spread: 99.1°
Horizontal Spread: 114.5°

850 mm models

Polar Candela Distribution



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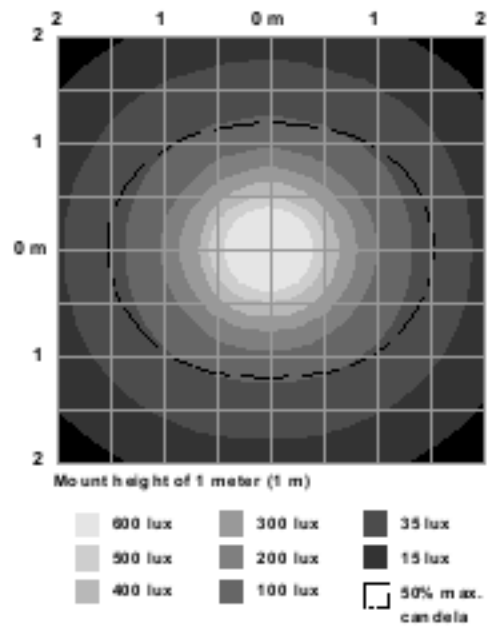


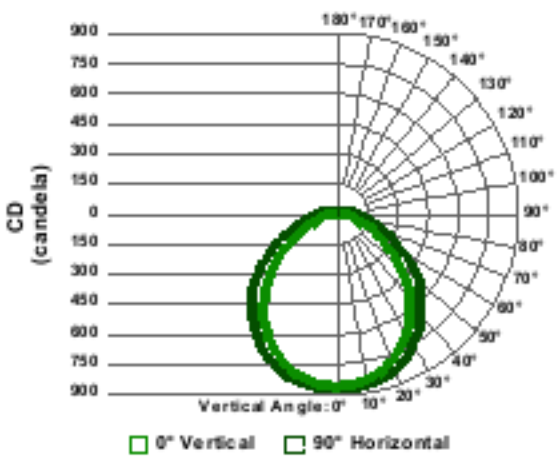
Illuminance at a Distance

	Center Beam (lux)	Beam Width (m)	
0.17 m	7648 lux	0.40 m	0.51 m
0.33 m	3766 lux	0.79 m	1.01 m
0.50 m	2197 lux	1.20 m	1.52 m
0.67 m	1422 lux	1.60 m	2.04 m
0.83 m	1006 lux	1.99 m	2.54 m
1.00 m	740 lux	2.39 m	3.05 m
		Vert.	Horiz.

Vertical Spread: 100.2°
Horizontal Spread: 113.7°

990 mm models

Polar Candela Distribution



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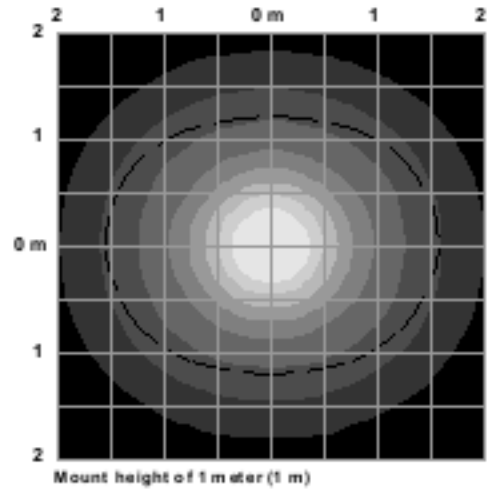


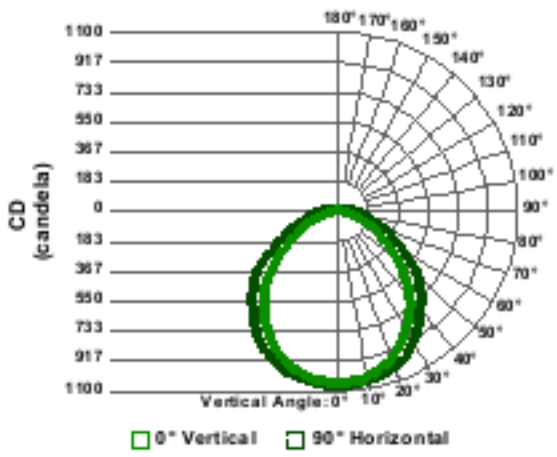
Illuminance at a Distance

	Center Beam (lux)	Beam Width (m)	
0.17 m	7708 lux	0.40 m	0.53 m
0.33 m	3859 lux	0.79 m	1.05 m
0.50 m	2333 lux	1.19 m	1.58 m
0.67 m	1559 lux	1.59 m	2.11 m
0.83 m	1124 lux	1.98 m	2.63 m
1.00 m	833 lux	2.38 m	3.16 m
		Vert.	Horiz.

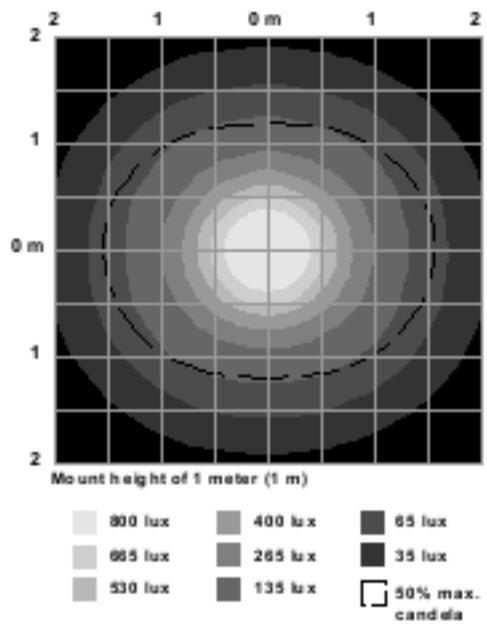
Vertical Spread: 99.8°
Horizontal Spread: 115.0°

1130 mm models

Polar Candela Distribution



Isolux Pattern



Illuminance at a Distance

	Center Beam (lux)	Beam Width (m)	
0.17 m	7783 lux	0.40 m	0.52 m
0.33 m	3930 lux	0.80 m	1.04 m
0.50 m	2458 lux	1.20 m	1.56 m
0.67 m	1680 lux	1.60 m	2.09 m
0.83 m	1237 lux	2.00 m	2.60 m
1.00 m	933 lux	2.40 m	3.13 m
		Vert.	Horiz.

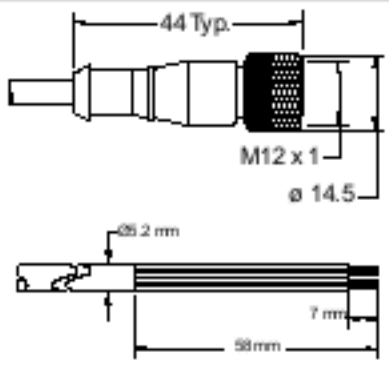
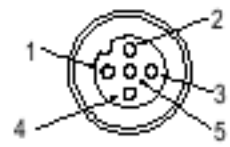
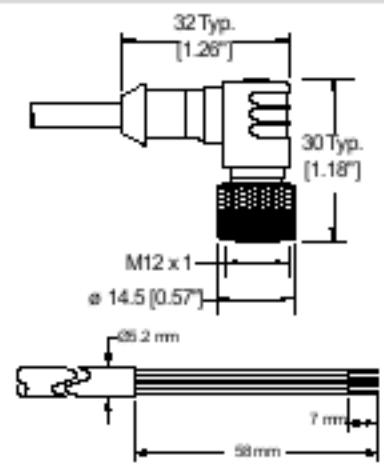
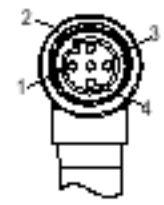
Vertical Spread: 100.6°

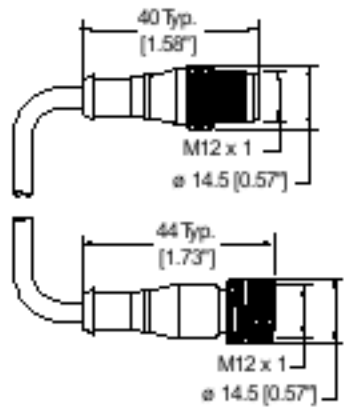
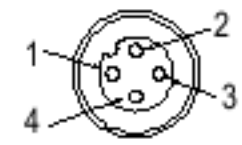
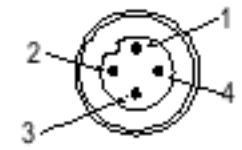
Horizontal Spread: 114.6°

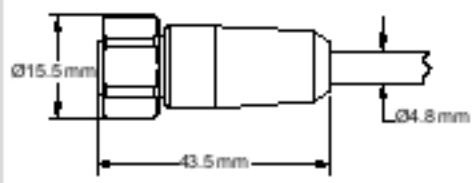
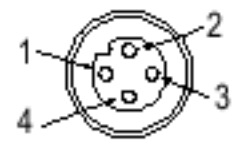
Chapter Contents

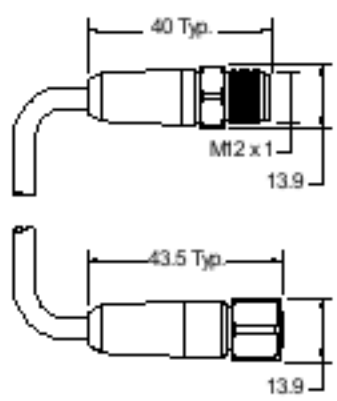
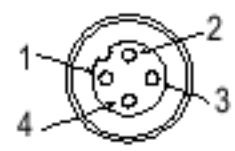
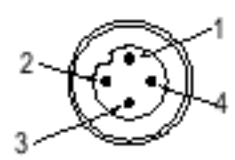
Chapter 4 Accessories

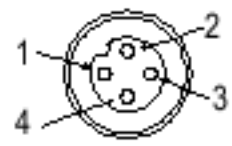
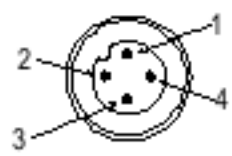
Cordsets

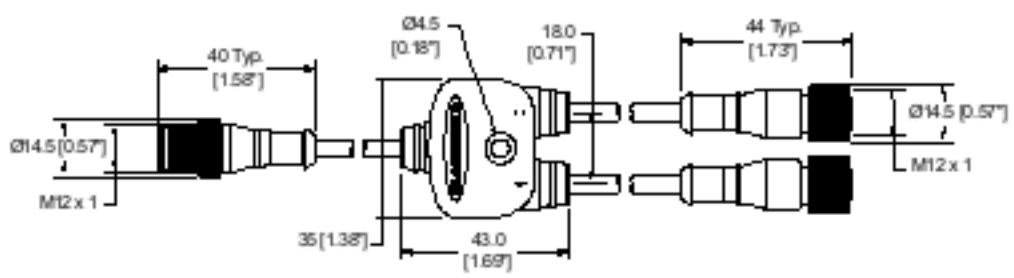
4-Pin Single-Ended M12 Female Cordsets					
Model	Length	Style	Dimensions	Pinout (Female)	
MQDC-406	2 m (6.56 ft)	Straight			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Not used c UL us
MQDC-415	5 m (16.4 ft)				
MQDC-430	9 m (29.5 ft)				
MQDC-450	15 m (49.2 ft)				
MQDC-406RA	2 m (6.56 ft)	Right-Angle			
MQDC-415RA	5 m (16.4 ft)				
MQDC-430RA	9 m (29.5 ft)				
MQDC-450RA	15 m (49.2 ft)				

4-Pin Double-Ended M12 Female to M12 Male Cordsets				
Model	Length	Style	Dimensions	Pinout
MQDEC-401SS	0.31 m (1 ft)	Male Straight/Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black c UL us
MQDEC-403SS	0.91 m (2.99 ft)			
MQDEC-406SS	1.83 m (6 ft)			
MQDEC-412SS	3.66 m (12 ft)			
MQDEC-415SS	4.58 m (15 ft)			
MQDEC-420SS	6.10 m (20 ft)			
MQDEC-430SS	9.14 m (30.2 ft)			
MQDEC-450SS	15.2 m (49.9 ft)			

4-Pin Single-Ended M12 Female Washdown, Stainless Steel Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-WDSS-0406	2 m (6.56 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black
MQDC-WDSS-0415	5 m (16.4 ft)			
MQDC-WDSS-0430	9 m (29.5 ft)			

4-Pin Double-Ended M12 Female to M12 Male Washdown Stainless Steel Cordsets				
Model	Length	Style	Dimensions	Pinout
MQDEC-WDSS-401SS	0.31 m (1 ft)	Male Straight/Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC-WDSS-403SS	0.91 m (2.99 ft)			
MQDEC-WDSS-406SS	1.83 m (6 ft)			
MQDEC-WDSS-412SS	3.66 m (12 ft)			

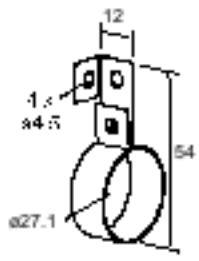
4-Pin Flat Junction M12 Female Branch to M12 MaleTrunk Splitter Cordsets			
Model	Branches (Female)	Trunk (Male)	Pinout
CSB-M1240M1240	No branch	No trunk	Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
CSB-M1240M1241	2 × 0.3 m (1 ft)	No trunk	
CSB-M1241M1241		0.31 m (1 ft)	
CSB-M1248M1241		2.44 m (8 ft)	
CSB-M12415M1241		4.57 m (15 ft)	
CSB-M12425M1241		7.60 m (25 ft)	
CSB-UNT425M1241		7.60 m (25 ft) Unterminated	
CSB-M1243M1243	2 × 1 m (3.28 ft)	1 m (3.28 ft)	



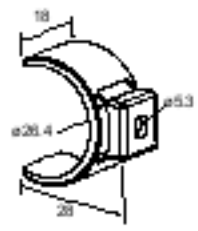
Brackets

LMBWLS27EC
- Clear copolyester
- Clearance for M5 or #10 hardware

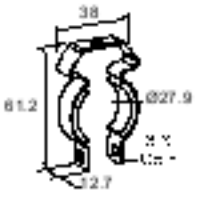
LMBWLS27H
- 300 series stainless steel mounting brackets
- M4 stainless steel hardware included



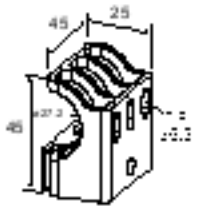
LMBWLS27SP
- Clear copolyester
- Clearance for M5 or #10 hardware
- Snap bracket for light-duty applications



LMBWLS27T
- Stainless steel mounting brackets with rubber grips
- M5 stainless steel hardware included
- Clearance for M5 or #10 hardware



LMBWLS27U
- Clear copolyester
- Clearance for M5 or #10 hardware
- Clamps securely around the light body



Chapter Contents

Chapter 5 Product Support and Maintenance

Clean with Mild Detergent and Warm Water

Wipe down the device with a soft cloth dampened with a mild detergent and warm water solution. Do not use any other chemicals for cleaning.

Repairs

Contact Banner Engineering for troubleshooting of this device. Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components. If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

> IMPORTANT: If instructed to return the device, pack it with care. Damage that occurs in return shipping is not covered by warranty.

Contact Us

Banner Engineering Corp. | 9714 Tenth Avenue North | Plymouth, MN 55441, USA | Phone: + 1 888 373 6767

For worldwide locations and local representatives, visit www.bannerengineering.com.

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